

## What's New in ZoneFlex Software Release 9.5

This application note describes the new features available in Version 9.5 of the Ruckus Wireless ZoneFlex family. This document assumes familiarity with the Ruckus ZoneFlex product line and the features of earlier releases including version 9.4.

### Highlights of this Release

ZoneFlex software release 9.5 provides Enterprises, HotZone Operators and Managed Service Providers a higher performing, more reliable, and easier to deploy and use way of providing wireless access to diverse groups of users across multiple locations. The few features and enhancements in this release include:

- Transmit Beamforming
- ZoneFlex 7321 5GHz support
- DHCP Relay
- Proxy ARP and ARP Broadcast filter (per SSID for tunnel and AP)
- Increased Client Count to 512 for 7982 and 7762-AC
- Wi-Fi CERTIFIED Passpoint™ support (802.11u/Hotspot 2.0)
- WMM-AC
- Dynamic and Guest VLAN for 802.1X Ethernet ports
- Device Policy Enforcement
- Customizable Channel Range Control
- Increased Encrypted LWAPP Tunnel Throughput
- Performance Analysis with RF Pollution
- TACACS+ Support for ZoneDirector, Access Points and FlexMaster
- FlexMaster Improved Reporting Fidelity
- FlexMaster High Availability

### Supported Platforms

- FlexMaster version 9.5
- ZoneDirector 1100 Smart/OS version 9.5
- ZoneDirector 3000 Smart/OS version 9.5
- ZoneDirector 5000 Smart/OS version 9.5
- ZoneFlex 2741 802.11g Outdoor Access Point version 9.5
- ZoneFlex 2942 802.11g Access Point version 9.5
- ZoneFlex 7025 802.11n Wired/Wireless Wall Switch version 9.5
- ZoneFlex 7321 802.11n Access Point version 9.5
- ZoneFlex 7341 802.11n Access Point version 9.5
- ZoneFlex 7343 802.11n Access Point version 9.5
- ZoneFlex 7363 802.11n Dual-band Access Point version 9.5
- ZoneFlex 7962 802.11n Dual-band Access Point version 9.5
- ZoneFlex 7982 802.11n Dual-band Access Point version 9.5
- ZoneFlex 7761-CM 802.11n Dual-band Outdoor Access Point with Cable Modem version 9.5
- ZoneFlex 7762 802.11n Dual-band Outdoor Access Point version 9.5
- ZoneFlex 7762-S 802.11n Dual-band Outdoor Access Point with Sector Antenna version 9.5
- ZoneFlex 7762-T 802.11n Dual-band Outdoor Access Point with High Gain 2.4 GHz Omni Antenna version 9.5
- ZoneFlex 7762-AC Dual-band 802.11n Outdoor Access Point version 9.5
- ZoneFlex 7762-S-AC Dual-band 802.11n Outdoor Access Point with Sector Antenna version 9.5

**NOTE:** The ZoneFlex 7942 access point is not supported in ZoneFlex Software Release 9.5. 9.4 is the last code version available for the ZoneFlex 7942.

## New Features in ZoneFlex 9.5

### 1. Transmit Beamforming

In addition to Ruckus Wireless' proprietary BeamFlex technology, ZoneFlex Access Points now support chip level transmit beamforming (TxBF) which complements BeamFlex to provide enhanced interference mitigation. Transmit Beamforming works with supported clients and across Ruckus SmartMesh links.

#### ***Customer Benefits***

- Better range, stronger signal and higher data rates to clients and SmartMesh links
- 9dB of Signal to Interference plus Noise (SINR) improvement when combined with BeamFlex
- 15dB of Interference Mitigation when combined with BeamFlex

#### ***Availability***

ZoneDirector with Smart/OS software release 9.5

### 2. ZoneFlex 7321 5GHz support

The ZoneFlex 7321 now supports single-radio switchable 2.4GHz or 5GHz operation configurable from the ZoneDirector Web interface. Operating in 5GHz provides enhanced performance by avoiding congested 2.4GHz channels often clogged with interference from Wi-Fi and other sources.

#### ***Customer Benefits***

- Selectable radio frequency for greatest flexibility
- Improved performance in 5GHz over congested 2.4GHz channels

#### ***Availability***

ZoneDirector with Smart/OS software release 9.5

### 3. DHCP Relay

The DHCP Relay Agent improves tunneled WLAN performance by preventing DHCP flooding across tunnel interfaces. Broadcast DHCP messages, common from Windows OS, are limited to the client's AP tunnel/radio interface and unicast DHCP messages are returned to the client instead of broadcasting messages. The DHCP Relay Agent allows forwarding DHCP requests directly to a DHCP server without the need to configure DHCP forwarding on a router interface.

#### ***Customer Benefits***

- Allows DHCP discovery and operation across routable subnets
- Improved tunnel performance by limiting DHCP broadcast traffic

#### ***Availability***

ZoneDirector with Smart/OS software release 9.5

**4. Proxy ARP and ARP Broadcast filter (per SSID for tunnel and AP)**

The Proxy ARP and ARP Broadcast Filter features significantly reduce network traffic caused by broadcast ARP/ICMPv6 messages on mesh and access WLANs. These services are available at the Access Point radios and ZoneDirector tunnel interfaces. Enabling these features makes it possible to disable broadcast forwarding, greatly reducing unnecessary network traffic while still enabling IP network applications to function. Additionally, limiting ARP/ICMPv6 messages to the wireless clients increase battery life.

***Customer Benefits***

- Improves network performance by preventing ARP broadcast flooding for large networks
- Improves Wi-Fi client battery life

***Availability***

ZoneDirector with Smart/OS software release 9.5

**5. Increased Client Count to 512 for 7982 and 7762-AC**

ZoneFlex 7982 and 7762-AC APs now support up to 512 clients per AP when no WLANs with encryption are enabled. With the highest client count in the industry, these new ZoneFlex access points provide industry leading Wi-Fi coverage demands for public venues, 3G data offload solutions and dense urban environments.

***Customer Benefits***

- High Wi-Fi association count for dense environments
- Limits passive clients from depleting active client connections

***Availability***

ZoneDirector with Smart/OS software release 9.5 on supported Access Points

**6. Wi-Fi Certified Passpoint™ support (802.11u/Hotspot 2.0)**

To address user experience and operator needs for hotspots, ZoneDirector now supports Wi-Fi CERTIFIED Passpoint™ hotspots (in addition to legacy hotspot services). Utilizing Hotspot 2.0 (Wi-Fi CERTIFIED Passpoint™) and IEEE 802.11u specifications, Hotspot 2.0 allows Wi-Fi CERTIFIED Passpoint™ devices to easily find, select and connect automatically in a security-protected fashion.

***Customer Benefits***

- Automated secure Wi-Fi connectivity to Hotspot 2.0 enabled networks
- Automatic network discovery and selection of Hotspot 2.0 services without user authentication
- Streamlined network access with automatic authentication and WPA2 security to Hotspot 2.0 services

***Availability***

ZoneDirector with Smart/OS software release 9.5

**7. WMM-AC**

ZoneDirector now supports Call Admission Control (or Wi-Fi Multimedia Admission Control, WMM-AC). WMM-AC improves the performance of VoIP Wi-Fi devices by preventing oversubscription of bandwidth for voice calls. This feature limits the number of WMM-AC capable VoIP devices that can connect based on airtime usage for quality assurance in VoIP WLANs.

**Customer Benefits**

- Maintains Wi-Fi VoIP call quality by preventing call oversubscription
- VoIP call connection limits based on real-time airtime utilization

**Availability**

ZoneDirector with Smart/OS software release 9.5

**8. Dynamic and Guest VLAN for 802.1X Ethernet ports**

Access Point Ethernet ports configured as 802.1X Authenticator ports can be configured to segment unauthenticated users into a Guest VLAN, or dynamically assign a VLAN based on RADIUS attributes. This allows the same set of Ethernet ports, typically on a ZoneFlex 7025 Wired/Wireless Wall Switch, to be used for both in-room entertainment, automation systems and guest access.

**Customer Benefits**

- Simple unauthenticated guest access for AP Ethernet ports
- Protects secure VLANs using 802.1x/MAC authentication

**Availability**

ZoneDirector with Smart/OS software release 9.5

**9. Device Policy Enforcement**

Administrators can now apply rules to allow, deny, rate limit or assign devices to separate VLANs based on operating system/device type. Completely managed by the ZoneDirector, this allows segregating network access on a single SSID without the need to maintain user roles or RADIUS/Active Directory attributes.

**Customer Benefits**

- Control network access per operating system/device type
- Permits flexible access rules without the need for external input

**Availability**

ZoneDirector with Smart/OS software release 9.5

**10. Customizable Channel Range Control**

Administrators can now manually configure which channels to use for automatic channel selection. The customized ranges are used by ZoneDirector's automatic channel selection algorithms, ChannelFly and Background Scanning. Control is configured based on Access Point Groups, providing granular control for diverse deployment environments.

**Customer Benefits**

- Precise control over available channel usage
- Allows automatic channel selection while avoiding specific channels

**Availability**

ZoneDirector with Smart/OS software release 9.5

**11. Increased Encrypted LWAPP Tunnel Throughput for ZoneDirector 5000**

The LWAPP tunnel encryption algorithm has been improved to take advantage of improved hardware acceleration on the ZoneDirector 5000 and supported Access Points. This enhancement provides significant performance improvements for encrypted tunneled WLANs on the ZoneDirector 5000.

**Customer Benefits**

- Significant throughput improvement for encrypted tunneled WLANs
- Similar performance between encrypted and un-encrypted tunnels

**Availability**

ZoneDirector with Smart/OS software release 9.5

**12. Performance Analysis with RF Pollution**

The ZoneDirector Web interface now displays performance statistics graphs for individual Access Points and clients. Performance Analysis provides a unique view into RF health without requiring advanced Wi-Fi chips. Ruckus is introducing two new metrics, RF Pollution and Estimated Channel Capacity (Mbps), to allow easy understanding of Wi-Fi's potential performance and factors that inhibit maximum throughput. The Performance Analysis with RF Pollution feature is supported on all existing access points.

**Customer Benefits**

- RF Pollution shows impact of performance robbing interference without the need to upgrade access points
- Easily understand Wi-Fi performance for Access Points and clients

**Availability**

ZoneDirector with Smart/OS software release 9.5

**13. TACACS+ Support for ZoneDirector, Access Points and FlexMaster**

TACACS+ is now supported as a new ZoneDirector, FlexMaster and AP administrator authentication method for admin authentication and level authorization (in addition to RADIUS, LDAP and Active Directory). This allows integration with customer's existing network wide admin authentication systems.

**Customer Benefits**

- Integration with existing TACACS+ authentication systems
- Single point of authentication and group based

**Availability**

ZoneDirector with Smart/OS software release 9.5

**14. FlexMaster Improved Reporting Fidelity**

This feature increases the range and the granularity on reporting. The new release allows reports to be run on 31 days' worth of data instead of the previous limit of 7 days. In addition, FlexMaster 9.5 allows reporting granularity at 15 minute intervals, increased from the previous hourly interval.

**Customer Benefits**

- Wider reporting timeframe to spot weekly trends
- Day of week comparisons across 4 weeks

**Availability**

ZoneDirector with Smart/OS software release 9.5

**15. FlexMaster High Availability**

FlexMaster High Availability (managed via VMware High Availability) facilitates the transparent failover from a Primary to a Secondary Virtual Machine. When the primary server fails for a variety of reasons including hardware failure or OS failure, the secondary server takes over without loss of state. This is implemented & tested with VMware 5.0 ESXi.



## *What's New in Version 9.5*

### ***Customer Benefits***

- Protect against server hardware and OS failure
- Minimize downtime

### ***Availability***

ZoneDirector with Smart/OS software release 9.5